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2012 Harbor Seal Survey Underway off New England Coast

Live-Capture Tagging, Aerial Surveys Focus on Cape Cod, Mid-Coast Maine Populations

Researchers have completed the first phase of a comprehensive study to determine the distribution and abundance of harbor seals (*Phoca vitulina)* off the coast of Cape Cod and mid-coast Maine.

The 2012 study along the New England coast, part of the ongoing seal research program at NOAA's Northeast Fisheries Science Center (NEFSC), is also a component of a much larger, multi-year survey of marine mammals, sea turtles, and seabirds along the entire U.S. East Coast that the NEFSC is leading on behalf of four federal agencies. The 2012 field work just began for this program, the **A**tlantic **M**arine **A**ssessment **P**rogram for **P**rotected **S**pecies (AMAPPS).

In the first phase of the seal study, researchers used three boats ─ two from the NEFSC's Woods Hole Laboratory and one from the University of Maine ─ to conduct live capture of harbor seals. Each captured animal was weighed, biological samples obtained (i.e., blood, skin and hair)) for health assessment and genetic studies, and radio and flipper tags affixed, before the seal was released.

Gordon Waring, who heads the seal research program at the Woods Hole Laboratory, noted that the harbor seal population survey is different from the Center's annual aerial photographic surveys since it will be conducted during the harbor seal's peak pupping period, which occurs from late May to early June.

"Theis distribution and abundance survey is more intense, in terms of the number and types of aerial surveys, the live-capture of harbor seals, the increased biological sampling efforts, and because we can tag up to 35 animals, which is the total number of radio tags we have available," said Waring. "Harbor seals are small and fairly easy to handle during live-capture efforts, are generally not aggressive, and they will shed the small radio tags when they molt in a few months."

Information from the radio-tagged seals will be used to adjust photographic counts of the number of seals obtained in subsequent aerial surveys to account for the fraction of animals not hauled-out on the ledges (and hence not available to be counted) during the aerial flights. While harbor seals are the focus of the aerial work, researchers will also count any gray seals (*Halichoerus grypus*) observed. The two species are the most common seals in New England; gray seals are much larger and often more aggressive than harbor seals.

The live capture work was conducted March 24-31 off Chatham Harbor, Mass. and continued April 12-17 off the coast of Rockland, Maine in western Penobscot Bay. Both areas

are traditional haul-out sites for harbor seals. A total of 29 seals were tagged, 17 seals at Chatham and 12 seals at Rockland. The scientific team is working under a research permit issued by NOAA to study these protected marine mammals. A special research use permit was obtained from the National Park Service for the Chatham tagging work.

Waring led the team of a dozen experienced marine mammal researchers from NEFSC's Protected Species Branch and Fisheries Sampling Branch at the Woods Hole Laboratory and colleagues from NOAA's Northeast Regional Office in Gloucester, Mass.; the Riverhead Foundation for Marine Research and Preservation on Long Island, N.Y.; and the Woods Hole Oceanographic Institution for the Chatham tagging work. Colleagues from NOAA's National Marine Mammal Laboratory in Seattle, Wash.; the University of Maine, Orono; Canada's Department of Fisheries and Oceans; the University of New England's Marine Animal Rehabilitation Center, and Marine Mammals of Maine joined the team for the Rockland tagging.

A pre-abundance survey aerial flight along the entire Maine coast will begin on May 26 or 27 to determine the general locations of the radio-tagged harbor seals at that time. Antennas mounted on the wings of the radio tracking airplane can detect the radio signals from tagged seals within a 5-10 mile area, when the radio-tagged animals are hauled out on the ledges.

On or about May 27, the aerial photographic abundance survey will begin. This survey will photograph seals on haul-out ledges in bay sectors in four-hour intervals. Simultaneously, the radio tracking aircraft will search in the same bay sectors for radio tagged seals. Data from both aircraft will be used to derive an abundance estimate.

"We do not know how many harbor seals exist in New England because most seal surveys focus on one specific area or location. However, we do know that local populations have become more abundant during the last few decades, and have changed in many ways, especially in southern New England and Nantucket Sound," Waring said. "While the overall geographic range of harbor seals has varied little in the last century, our ability as scientists to learn more about the behavior of the seals, their seasonal migration patterns and habitat uses, and their interactions with other species (including humans) has markedly improved."

The Protected Species Branch at the NEFSC's Woods Hole Laboratory is responsible for assessing the status of marine mammal populations and other federally protected species off the northeast U.S. coast from Canadian waters to Cape Hatteras, N.C. Among the animals studied are whales and dolphins, seals, marine turtles, and seabirds.

Waring noted that the comprehensive 2012 seal study is an example of collaboration among many different organizations so that everyone involved benefits as much as possible. "My goal is to successfully conduct the capture/tagging and aerial abundance survey," Waring said, "and to continue developing the regional network of seal researchers and cooperative research programs."

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Related Links:

NEFSC's Protected Species Branch: http://www.nefsc.noaa.gov/psb/
2012 Seal Tagging Expeditions: http://www.nefsc.noaa.gov/news/features/seal_capture/
Atlantic Marine Assessment Program for Protected Species (AMAPPS): http://www.nefsc.noaa.gov/psb/AMAPPS/index.html

2011 Harbor Seal Tagging and Abundance Estimation Project:
http://www.nefsc.noaa.gov/psb/seals/SealCapture.htm
Seal research at the NEFSC's Woods Hole Laboratory:
http://www.nefsc.noaa.gov/psb/seals/index.html
Surveys Show Increasing Populations of Gray and Harbor Seals in New England (2009 NEFSC news release): http://www.nefsc.noaa.gov/press_release/2009/SciSpot/SS0901/